

IN THE CLAIMS

Claims 1-11 (Canceled).

12. (Currently amended) An isolated protein having glycosyl hydrolase activity, said protein being selected from the group consisting of

- (a) a protein comprising an amino acid sequence depicted in SEQ ID NO: 2;
- ~~(a) a protein comprising an amino acid sequence depicted in SEQ ID NO: 4;~~
- (b) a protein encoded by the nucleotide sequence of SEQ ID NO: 1;
- ~~(b) a protein encoded by the nucleotide sequence of SEQ ID NO: 3;~~ and
- (c) a protein having a hydrophobic cluster analysis (HCA) score with the iota-carrageenase of *Alteromonas fortis* which is greater than or equal to 65% over the domain extending between amino acids 164 and 311 of the amino acid sequence of *Alteromonas fortis* that is SEQ ID NO: 2.

13. (Previously added) A protein according to claim 12, wherein the HCA score is greater than or equal to 70%.

14. (Previously added) A protein according to claim 12, wherein the HCA score is greater than or equal to 75%.

15. (Previously added) A protein according to Claim 12, comprising an amino acid sequence depicted in SEQ ID NO: 2, wherein the protein is extracted from *Alteromonas fortis*.

Claim 16 (Canceled).

17. (Currently amended) A method of producing iota-oligocarrageenans iota-carrageenans, comprising

(a) genetically modifying a host cell with a nucleic acid molecule having SEQ ID NO: 1 ~~or SEQ ID NO: 3~~, or with a vector comprising a nucleic acid molecule having SEQ ID NO: 1 ~~or SEQ ID NO: 3~~;

(b) culturing the host cell until a protein having glycosyl hydrolase activity is produced;

(c) isolating the protein having glycosyl hydrolase activity;

(d) contacting the isolated protein having glycosyl hydrolase activity with a carrageenan until ıota-oligocarrageenans ıota-carrageenans are produced; and

(e) recovering the ıota-oligocarrageenans ıota-carrageenans.